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Pattern formation method for semiconductor substrates - uses a silicon cpd. surface pre-treatment preventing the formation of an insoluble skin on the surface of the resist pattern

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Number of Countries: 008 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 757290	A2	19970205	EP 96112569	A	19960802	199711 B
JP 9102458	A	19970415	JP 96180602	A	19960710	199725
KR 97012021	A	19970329	KR 9631804	A	19960731	199815
US 6054255	A	20000425	US 96691124	A	19960801	200027 N
			US 97888129	A	19970703	
TW 386180	A	20000401	TW 96108702	A	19960717	200057

Priority Applications (No Type Date): JP 95198296 A 19950803; US 97888129 A 19970703

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 757290	A2	E	43	G03F-007/075	
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Designated States (Regional): DE FR GB IT

JP 9102458	A	26	H01L-021/027	
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KR 97012021	A		G03F-007/26	
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US 6054255	A		G03F-007/00	Div ex application US 96691124
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TW 386180	A		G03F-007/00	
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Designated States (Regional): DE; FR; GB; IT

Abstract (Basic): EP 757290 A

A pattern forming method consists of: (i) treating the surface of a semiconductor substrate with a surface treating agent containing a silane cpd. represented by formula (1):

$R14-nSi(OR)_n$ (1)

$n = 1 - 3$; R = opt. substd. 1-6C (un)satd. hydrocarbon or opt. substd. 1-6C alkylcarbonyl gp.; R1 = H, opt. substd. 1-6C (un)satd. hydrocarbon or alicyclic satd. 3-6C hydrocarbon gp.; (ii) coating the treated surface with a chemically amplified resist to form a resist film; and (iii) exposing the resist film to light via a mask with a desired pattern configuration, and developing the resist film to give a resist pattern.

Also claimed are: (a) identical pattern forming methods which use silane cpds. of formula (2), (3), (4), (5) or (6):

$R2R13-nSi(OR)_n$ (2)

$R2R13-nSi(NR32)_n$ (3)

$(R2R12Si)2NR3$ (4)

$R14-nSi(OR4)_n$ (6)

R2 = opt. substd. 3-6C (un)satd. hydrocarbon or alicyclic satd. 3-6C hydrocarbon gp.; R3 = H or unsubstd. satd. 1-3C hydrocarbon gp.; R4 = substd. satd. 1-6C hydrocarbon gp., opt. substd. unsatd. 1-6C hydrocarbon gp. or opt. substd. 1-6C alkylcarbonyl gp.; $m = 2 - 6$; and

(b) a surface treating agent for treating the surface of a semiconductor substrate containing a silane cpd. of formula (7):

$R14-nSi(OR)_n$ (7).

USE - For pattern formation, partic. on substrates used in the mfr. of semiconductor devices.

ADVANTAGE - Prevents formation of an insoluble skin layer on the surface of the resist pattern, and formation of a footing at the base of the resist pattern. Improves the adhesion of the resist to the semiconductor substrate.

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Increasing adhesion of resist layer to semiconductor substrate - by
treating substrate with organo silicon amide. NoAbstract Dwg 0/1

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Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 58188132	A	19831102				198350 B

Priority Applications (No Type Date): JP 8270485 A 19820428

Patent Details:

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JP 58188132	A		19		

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